REMARKS

Claims 1, 3-6, 8, 9, 11, 13-16, 18-24, 26, 27, 29-31, and 32-48 remain pending in the present application after amendment. Independent claims 1, 11, 20, 27, and 40 have been amended. No claims have been added or canceled. Applicants respectfully submit that no new matter has been added to the application by the Amendment. In particular, the shared and non-shared attributes of the first and second hierarchies are disclosed in connection with Fig. 3 of the application as filed.

Telephone Conversation With Examiner

Examiner Channavajjala is thanked for the telephone conversation conducted on December 17, 2008. Proposed claim amendments were discussed. Cited art was discussed. No agreements were reached.

Claim Rejections

The Examiner has rejected claims 27 and 29-31 under 35 USC § 101 as reciting non-statutory subject matter. According to the Examiner, the claims lack necessary physical articles or objects to constitute a machine or manufacture. Applicants respectfully traverse the § 101 rejection insofar as it may be applied to the claims as amended.

Applicants have amended independent claim 27 to recite a system 'embodied in computer hardware', which should be interpreted to be the necessary physical article or object required to constitute a machine or manufacture. Dependent claims 29-31 include such a limitation at least by their dependencies on independent claim 27. Accordingly, Applicants respectfully request reconsideration and withdrawal of the § 101 rejection.

The Examiner has rejected the claims under 35 USC § 103 as being obvious over Colossi et al. (IBM Systems Journal, December 2002) in view of Eglisson et al. (U.S. Patent Pub. No.

2003/0145004). Applicants respectfully traverse the § 103 rejection insofar as it may be applied to the claims as amended.

In the present application, and as was previously pointed out, a relational database is disclosed as having data organized in columns of tables or the like, and a dimension is defined with respect to the columns so as to simplify drilling down into the data. As may be appreciated, a dimension classically has a single hierarchy of attributes, where each attribute corresponds to a column. For example, a hierarchy of a dimension may be time-based and therefore have successive hierarchical levels that more finely define time, such as year, month, day, hour, minute, etc. In accordance with the present application, however, a single dimension may be organized into multiple hierarchies so as to simplify data organization and access. Thus, in addition to the time-based hierarchy, the aforementioned dimension may also have a location-based hierarchy, for example, with successive hierarchical levels that more finely define location, such as country, state, county, city, etc.

In independent claim 1, a method is set forth where a dimension is defined to have a plurality of attributes, where each attribute is assigned to a respective column of the database, and where the database has restrictions. As may be appreciated, such restrictions are with regard to the columns / attributes and may for example be that one attribute always appears with another attribute (i.e., a city must always be associated with a state).

Relationships are defined between the attributes of the defined dimension, where the defined relationships are not subject to the restrictions of the database. To continue the above example, then, a defined dimension need not have a city associated with a state. Significantly, the defined relationships establish a first hierarchy of the attributes with respect to the defined dimension.

In a similar manner, new relationships are defined between the attributes of the defined dimension, where the new defined relationships establish a second hierarchy of the attributes with respect to the defined dimension. As before, the new relationships are not subject to the

restrictions of the database. Here, the new relationships of the second hierarchy modify at least one relationship of the first hierarchy between the attributes. Thus, the first and second hierarchies are not identical, although the hierarchies can share attributes from the defined dimension. Accordingly, claim 1 as amended recites that the first hierarchy and the second hierarchy share at least one common attribute from the defined dimension, that the first hierarchy has at least one attribute from the defined dimension not present in the second hierarchy, and that the second hierarchy has at least one attribute from the defined dimension not present in the first hierarchy. As such, the first and second hierarchies of the dimension may be employed to access the database in differing yet perhaps related manners without the need to modify the dimension.

Such first and second hierarchies as are now recited in claim 1 are shown in Fig. 3 of the application as filed. As seen in such Fig. 3, a single dimension for a customer has sales region, country, state, city, and name attributes, among others, and two hierarchies are defined: customer by geographic location and customer by sales region. Such hierarchies are related inasmuch as they share the city and name attributes of the dimension, but differ inasmuch as only the former includes the country and state attributes and only the latter includes the sales region attribute. With such hierarchies, then, it should be understood that the data represented by the single dimension may be drilled down into by two separate modes as represented by the two hierarchies.

Independent claims 11, 20, 27, and 40 recite subject matter similar to that of claim 1, albeit in the form of a computer-readable storage medium, a system, a system, and a method with differing focus, respectively. To summarize, then, the claims of the present application highlight (1) that the restrictions of the database are not imposed on the hierarchies of the dimension, (2) that the dimension is defined to have multiple hierarchies, (3) that each hierarchy is based on differing attributes from the dimension, and (4) that each defined hierarchy of the dimension may be employed to search the database without modifying the dimension.

The Examiner again points to the Colossi reference as disclosing all aspects except multiple hierarchies defined for a dimension. Here, though, the Examiner cites to the Eglisson reference as disclosing such missing feature. However, Applicants respectfully submit that the Eglisson reference does not disclose or even suggest multiple hierarchies derived from a common dimension in the manner now recited in the claims. In point of fact, the Eglisson reference discloses first and second dimensions (Fig. 6), where the second dimension is re-written / modified to facilitate searching (Fig. 7). Significantly, each of the first and second dimensions is focused on a single hierarchical relationship: gender in the first dimension and location in the second dimension. Moreover, even after re-writing / modifying, the second dimension still is focused on the aforementioned location hierarchical relationship.

Put simply, in accordance with the teachings of Eglisson, each dimension has only a single corresponding hierarchical focus and each dimension has a single hierarchical relationship associated therewith unless re-written / modified to assume a differing hierarchical relationship. As a result, the Eglisson reference also does not disclose or even suggest that first and second hierarchies are established from a single dimension without modifying same, where the first hierarchy and the second hierarchy share at least one common attribute from the defined dimension, the first hierarchy has at least one attribute from the defined dimension not present in the second hierarchy, and the second hierarchy has at least one attribute from the defined dimension not present in the first hierarchy, as is now recited in the independent claims. In a corresponding manner, the Eglisson reference does not appreciate that by employing differing first and second hierarchies as are now recited in the claim, a single dimension may be drilled down into by two separate modes as represented by the two hierarchies without the need to modify the dimension.

As a result, Applicants respectfully submit that the combination of the Colossi and Eglisson references does not disclose or even suggest all of the recited elements of the independent claims as amended. Base thereon, such combination cannot be applied to make obvious such independent claims or any claims depending therefrom. Thus, Applicants

respectfully request reconsideration and withdrawal of the § 103 rejection insofar as it may be

applied to such claims as amended.

CONCLUSION

In view of the foregoing discussion, Applicants respectfully submit that the present application including claims 1, 3-6, 8, 9, 11, 13-16, 18-24, 26, 27, 29-31, and 32-48 is in condition for allowance, and such action is respectfully requested.

Respectfully Submitted,

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